

**NORTH
AMERICAN
WATERFOWL
MANAGEMENT
PLAN**

**MANITOBA
IMPLEMENTATION PLAN**

PHASE ONE - MINNEDOSA POTHOLE PROJECT



**Endorsed by the Prairie Habitat Joint Venture
Steering Committee**



**Delta Waterfowl and
Wetlands Research Station**

**Manitoba
Agriculture**

**Manitoba
Natural Resources**



**Environment
Canada
Canadian Wildlife
Service**



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NORTH AMERICAN WATERFOWL MANAGEMENT PLAN
PRAIRIE HABITAT JOINT VENTURE

MANITOBA IMPLEMENTATION PLAN

PHASE ONE - MINNEDOSA POTHOLE PROPOSAL

October, 1988

SUMMARY

The Minnedosa Pothole Proposal represents Phase One of the Manitoba Implementation Plan (MIP) of the North American Waterfowl Management Plan (NAWMP). It complements proposals for similar initiatives in Saskatchewan (Quill Lake Region Proposal) and Alberta (Buffalo Moraine Proposal).

The Minnedosa Pothole Proposal is designed for immediate implementation to benefit waterfowl populations, particularly mallards. It combines measures designed specifically to maximize duck production with soil and water conservation techniques used to modify and improve land use practices which have secondary benefits to waterfowl. Several elements have been included to facilitate integration of this wildlife program with Agriculture Canada's (PFRA) marginal land conversion program.

The proposed upland habitat management options were selected from the array of potential options discussed in the Manitoba Implementation Plan of the NAWMP. After 5 years of this Phase One Proposal, an estimated 14,000 incremental mallards will have been produced. Assuming continuation for a minimum of 15 years, 79,000 mallards and 174,000 additional ducks will have been produced. The Minnedosa Pothole Proposal will cost \$1,304,000 during the initial 3 year implementation period (1988 to 1990) and an additional \$1,235,000 will be required to maintain and manage the various options through the 15 years of the NAWMP. Total cost is estimated at \$2,539,000 over 15 years.

Complementary programs recommended in the Minnedosa Pothole Proposal are a \$30,000 communications package to develop and maintain public awareness of the project and the NAWMP; an evaluation program estimated to cost \$100,000 will assess the nesting success and density that can be attributed to the proposed options; a crop damage prevention program of \$100,000 has been incorporated as a discretionary measure to be applied if and as needed in the Minnedosa pothole area. Since any increased waterfowl damage is more likely to occur in traditional staging areas such as Big Grass Marsh, Delta Marsh, or Oak-Plum Lakes, it may be necessary to expend funds in these areas, or it may be necessary to develop a depredation program in or nearby if these birds begin to stage in the targeted area.

Program administration and delivery is to be accomplished using existing wildlife and agricultural agency infrastructure. In particular, the staff and administrative resources established for the Manitoba Habitat Enhancement Land Use Program (HELP) will be integrally involved. Additional seasonal and contract staff will be necessary.

The Minnedosa Pothole Proposal will affect 3,800 acres of upland waterfowl nesting habitat. Concomitant with the benefits of this program for upland nesting waterfowl, agreements achieved on adjoining wetlands will assure that present production of overwater nesting species will continue. Upland game and nongame habitats will be

improved and an increase in these wildlife populations can be expected.

Options from the Manitoba Implementation Plan selected for the proposal are: fenced dense nesting cover involving 1,200 acres and producing 138,000 ducks; 380 artificial nesting structures installed in order to secure wetlands where upland cover is lacking or cannot be developed, producing 5,600 ducks; temporary reservation on native pastures and erosion-prone lands to reserve 1,600 acres and producing 12,300 ducks; and a rotational grazing demonstration on 1,000 acres which will have the potential of producing 17,600 additional ducks over the 15 years.

Funding generated by wildlife agencies under the NAWMP should be directed toward an immediate improvement of the factors limiting waterfowl production in the prairie area. Intensified agricultural activities have reduced upland nesting habitat drastically and this critical need has been addressed in the Minnedosa Pothole Proposal.

In addition, this proposal has the potential for some cooperative initiatives with agricultural agencies for land retirement and soil and water conservation. These options also have considerable merit for enhancing waterfowl productivity. The Minnedosa Pothole Proposal will complement the long range NAWMP goal of emphasizing soil and water conservation and demonstrating that agriculture and wildlife production can be complementary pursuits.

Introduction

In the prairie region of Canada, breeding duck populations have been declining since 1955 (Manitoba Implementation Plan, 1988). Mallard breeding populations in southern Manitoba averaged 536,000 during the period 1955 to 1964. By 1984, the mallard breeding population in southern Manitoba reached an historical low level of 176,000. This decline was not unique to Manitoba, but occurred over the entire prairie pothole and parkland habitat area (see North American Waterfowl Management Plan, page 12, figure 3). The prairie wide decline of ducks, particularly the upland nesting species (mallards and pintails), led to an international initiative to identify and address the factors responsible for the decline. This culminated in the signing of the North American Waterfowl Management Plan in May, 1986.

Shortly after this historic event, work toward developing the Manitoba Implementation Plan (MIP) of the Prairie Habitat Joint Venture (PHJV) was initiated. The MIP identifies provincial mallard and total duck population objectives, habitat objectives, priority habitat areas, habitat development techniques and required resources to meet these objectives. One of the objectives of the Manitoba Implementation Plan is to produce and maintain an average breeding mallard population of 400,000 in southern Manitoba, to provide a fall flight of 760,000

mallards and to produce and maintain an average, provincial, breeding population of 2 million total ducks.

The Minnedosa Pothole Proposal is designed for immediate implementation to benefit waterfowl, particularly mallards. For this proposal, several options were selected from the Manitoba Implementation Plan that will produce a maximum number of ducks and that can foster cooperative soil and water conservation programs with agriculture. A computer planning tool (CPT) was used to estimate resource needs for mallard and other duck production. The CPT is a computer model developed by the Manitoba PHJV Technical Committee to quantify cost effectiveness of various habitat programs.

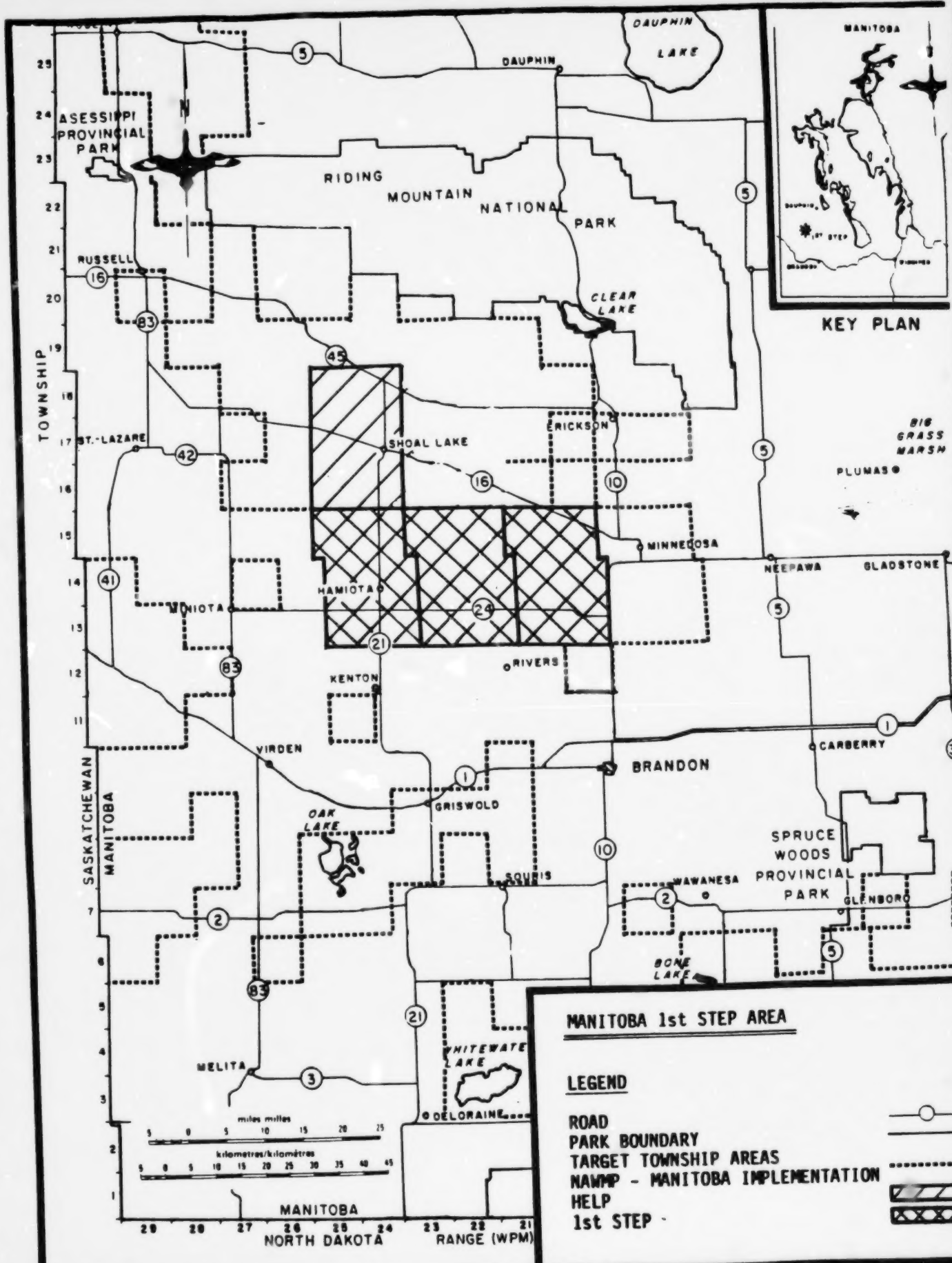
Target Area

The Minnedosa pothole area has been selected as the primary target for the Phase One Project. Kiel, et al. (1972) estimated that at the time of their study, the Minnedosa pothole region had the capability of contributing at least 1 million ducks to the fall migration annually. Using recent data for breeding waterfowl (Jones, 1988) and age ratios (Gauthier and Hochbaum, 1985), the same area had the ability to produce an estimated 550,000 ducks for the 1987 fall flight. Kiel, et al. (1972) estimated a pothole density of 48 potholes per square mile. Jones (1988) indicated a reduction to 37 per square mile in 1987 after 15 years of pothole drainage and filling.

Three municipalities with high capability for waterfowl production have been selected from the Manitoba Implementation Plan target zone for the Phase One Project; Hamiota, Saskatchewan and Blanshard (see Figure 1). These municipalities are adjacent to the Rural Municipality of Shoal Lake, the site of the \$3.2 million HELP program whose staff will be the primary delivery agency. Each municipality contains 6 townships, for a total of 18 townships or 648 square miles. Land use in the area is predominantly crop production with 75% devoted to grain crops and 16% to pasture. Other uses and unimproved lands make up 9% of the landscape (Manitoba Agriculture yearbook, 1986).

Delivery

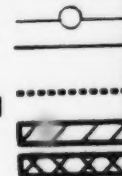
The Minnedosa Pothole proposal will be implemented through existing delivery systems of participating agencies, particularly through the mechanism established for the Manitoba Habitat Enhancement Land Use Program. Additional contract or seasonal staff will be required by participating agencies for specific aspects of delivery and management. The proposal has been designed to provide a broad range of opportunities for participation by the partners of the Prairie Habitat Joint Venture. The agricultural components should provide an excellent opportunity for integration with agricultural based programs such as the



MANITOBA 1st STEP AREA

LEGEND

- ROAD
- PARK BOUNDARY
- TARGET TOWNSHIP AREAS
- MANIMP - MANITOBA IMPLEMENTATION
- HELP
- 1st STEP



PFRA Permanent Cover Program and the Manitoba Department of Agriculture
Soil and Water Conservation Strategy.

Schedule

The Manitoba Phase One Project is designed to be initiated in mid summer 1988, and continue through to the year 1990. Following this initial term, the project will require funding through the remainder of the 15 year term of the North American Waterfowl Management Plan. Scheduling and budget aspects are outlined in Table 1.

TABLE 1. Minnedosa Pothole Proposal Budget (000's)

Program Component	Acquisition Cost (\$) (Year 1-3)	Development Cost (\$) (Year 1-3)	Development Cost (\$) (Year 4-15)	Management Cost (\$) (Year 1-15)	Total Cost (\$) (Year 1-15)
Fenced Dense Nesting Cover (1,200 ac.) on acquired lands	288	466	60	870	1,684
Nest Baskets with free easement on wetlands		68		134	202
Leased Pasture with interseeding (5 yrs.) (500 ac.)	37 ^a	47	22		106
Leased Pasture with interseeding (10 yrs.) (500 acres)	45 ^a	37	13	4	99
Rehabilitation of erodible land (10 yr. agreement) (800 ac.)		148	23		171
Rotational grazing (1,000 ac.)		38		9	47
Crop damage			100		100
Communication		30			30
Program Evaluation		100			100
Total	370 ^b	934	218	1,017	2,539

^aLease cost over the term of the program component.

^bThree year cost = \$1,304

Program Options

The Minnedosa Pothole Proposal identifies an expenditure of \$2,539,000 over a period of 15 years. Expenditures during the start up period of 1988 to 1990 will be \$1,304,000 (Table 1). This includes primarily the securement of the land base and project establishment costs.

Four major options are proposed for initiation under the Minnedosa Pothole Proposal. All the programs are designed to produce incremental mallards quickly (Table 2).

1. Fenced Dense Nesting Cover (DNC)

The DNC component is intensive and designed to produce a high number of incremental ducks within a relatively short time period. Predator fenced DNC has proved to be a highly productive method of generating new nesting habitat for all species of upland nesting ducks.

Ten of the 18 townships have been selected for intensive cover management. Three units of at least 40 acres will be acquired in each township for a total of 30 acquisition sites. As soon as feasible the arable lands in these sites will be planted to a suitable dense nesting cover preferably a native grass-forb mixture. After securing a suitable nesting cover, each site will be evaluated for its' potential for nest production and success. Increased nesting success is contingent on lowering predator disturbance potential and the most successful method so far has been to fence 40 acre blocks removing and excluding the predators within the fenced areas. The cost of establishing 1,200 acres of native dense nesting cover with predator fencing is \$754,000 over the 3 year period with a further expenditure of \$930,000 for fences and cover maintenance as well as predator reduction over the 15 year period. An estimated 60,000 mallards and 138,000 total ducks can be produced over the 15 years.

TABLE 2. Mallard and Other Duck Production from the Minnedosa Pothole Proposal Options

Option	Acres	Year 1-5 Incremental Mallards	Year 1-15		Program Cost (\$)
			Incremental Mallards	Incremental Ducks	
Fenced Dense Nesting Cover	1,200	10,500	60,000	138,000	1,684,000
Nest Baskets	a	950	5,600	5,600	202,000
Pasture Interseed (5 and 10 yr. leases)	800	150	750	1,700	205,000
Erodible Land Rehabilitation	800	1,900	4,600	10,600	171,000
Rotational Grazing	<u>1,000</u>	<u>600</u>	<u>7,650</u>	<u>17,600</u>	<u>47,000</u>
Total	3,800	14,100	78,600	173,500	2,309,000

a 380 Nest baskets used to reserve an unknown acreage of wetlands with free easements.

2. Artificial Nesting Structures

Artificial nesting structures will be installed in wetlands where securement of upland cover is not possible. Use of nest structures is a specific program that will enhance nesting success for mallards. They have little value to other waterfowl species with the exception of Canada Geese. Nest structures have considerable public relations value, especially if public service groups (Game and Fish Associations, Boy Scouts and 4-H) can be enlisted to monitor and manage the structures. It is anticipated that 380 nest baskets can be installed and managed during the 3 years of project initiation. A similar program is being operated at Shoal Lake by the HELP program. The CPT model predicts a cost of \$202,000 with an incremental mallard production of 5,600 over the 15 year NAWMP time frame. Cost of installation and management can be reduced if public service organizations are enlisted to assist in this program.

3. Pasture and Erodible Land Rehabilitation

Two options are suggested to secure pasture land and to rehabilitate erodible lands for waterfowl production in the target zone. It is anticipated that these options can be integrated into PFRA's Marginal Land Conversion Program and that the acreages presented are a minimum figure.

- a) Pasture land reservation with interseeding, leased for a 5 year period would cost \$106,000. It is anticipated that 500 acres of cover could be obtained in this manner. A similar program with a 10 year lease period would involve approximately 300 acres of land. The total cost of securement and management would be \$99,000. The two pasture improvement programs would produce 750 mallards and 1,700 total ducks over the 5 and 10 year periods of the leases. Agriculture benefits would accrue to the landowner at the end of the lease period in improved forage quality.
- b) Unfenced DNC on erodible lands would secure 800 acres of erosion prone land for waterfowl production. Under this alternative erosion prone lands would be rehabilitated and seeded to dense nesting cover over a 10 year period. Securement would be by agreement in exchange for the rehabilitation work. This program would cost \$171,000 and produce 4,600 mallards and 10,600 total ducks over the 10 year term.

4. Rotational Grazing

A demonstration project involving 1,000 acres of pasture in rotational grazing is the final program option of the Minnedosa Pothole Proposal. It is a program directly transferable from the HELP program. This is an extension program that provides improved management to the landowner.

At the same time, conversion to rotational grazing with the resulting improved nesting cover produces additional waterfowl. The CPT predicts that 1,000 acres of demonstration pasture should result in 5,000 acres of rotational grazed pasture at the end of the 15 year NAWMP term as agriculture adopted this as an improved management technique. The cost of 1,000 acres of rotational grazing is \$47,000 and would over the 15 year period, generate 7,650 mallards and 17,600 total ducks.

Supporting Elements

Three complementary elements are necessary to make the waterfowl production scheme function smoothly and receive local acceptance.

1. Crop Damage Prevention

Crop depredation by waterfowl in the target zone is diffuse and sporadic. Significant problems are not predicted. A budget of \$100,000 is recommended to prevent damage that can be attributed to the Phase One Proposal. Activities funded could include lure crops, bait stations, zone bangers and prevention staff. This may be applied to the Minnedosa area or to traditional staging sites such as Delta, Lidcliffe, Big Grass, Whitewater Lake, Oak Plum, or newly adopted staging areas in the target area. The expenditure of these funds would likely occur after the 3 year implementation period as wildlife densities increased.

2. Communication Program

To foster acceptance of the proposal by area farmers, a communication package will be implemented. This will include media events, political demonstration tours, on farm presentations, slide shows, videos, a brochure, signs for individual projects and landowner seminars. It is expected that an adequate program can be developed and delivered for \$30,000.

3. Program Evaluation

Biological evaluation will be confined to establishing whether the production goals of the CPT models are being met, particularly for the DNC techniques. Nest success will be monitored in years 1, 3 and 5 of the project. Data collected in the evaluation will be used to improve programs for further delivery under the NAWMP.

Benefits to Non-Waterfowl Species

Implementation of this proposal will preserve and enhance existing wetlands and will create secure upland nesting habitat for a wide range of wildlife species. Upland game birds, particularly the sharp-tailed grouse and gray partridge, will benefit from dense nesting cover. Songbirds such as the bobolink, clay-colored sparrow, Le Conte's sparrow and meadowlarks can be expected to increase as a result of upland cover development. Retention of the wetlands will maintain the habitats of the black tern, American coot, pied-billed and eared grebes as well as numerous species of shorebirds.

White-tailed deer will use DNC for forage and for fawning. Other smaller mammals will use the upland cover as part of their habitats. Emphasis on using native prairie grass species in the DNC plots will restore examples of natural habitats prairie over the landscape.

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